RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

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PURPOSE AND NEED

Introduction

The Bureau of Reclamation, Glenn-Colusa Irrigation District (GCID), and the San Luis & Delta-Mendota Water Authority (SLDMWA) have negotiated an agreement entitled *Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations* (Agreement). The Agreement provides that GCID will forbear diversion of up to 85,000 acre-feet of Sacramento River water that GCID otherwise is entitled to under the terms of its Sacramento River Settlement Contract No. 14-06-200-855A (Settlement Contract) with Reclamation and which GCID would have diverted during 2008 for use on lands within its Settlement Contract service area. The forbearance shall be undertaken in a manner that allows Reclamation to deliver the forborne water supply as Central Valley Project (CVP) water to SLDMWA. The term of the Agreement will be from the date of execution of the Agreement through and including February 28, 2009, or if the option under the Agreement is terminated by April 21, 2008, then this Agreement shall expire immediately thereafter.

The Agreement enables Reclamation to implement Section 3406d(1) of the Central Valley Project Improvement Act, which requires the Secretary of the Department of the Interior to diversify sources of supply to minimize adverse effects upon CVP contractors from delivery of Level II refuge water supplies south of the Sacramento-San Joaquin Delta (Delta).

GCID has completed California Environmental Quality Act (CEQA) compliance documents for its proposed action (to be appended to the Final Environmental Assessment) (EA) and are incorporated by reference.

Purpose and Need Statement

The purpose of the Federal action is to diversify sources of supply to minimize adverse effects upon CVP contractors from delivery of Level II refuge water supplies south of the Delta. The need for the proposed forbearance is to provide additional water supplies for CVP purposes, including delivery of CVP water to SLDMWA for irrigation of crops within SLDMWA's contractors' existing service areas.

The annual CVP allocation for south-of-Delta contractors is described in terms of a percentage of the total contracted supply under CVP south-of-Delta water service contracts for irrigation and municipal and industrial uses (Contract Total). This transaction is needed because the CVP south-of-Delta irrigation allocation for water service contractors for 2008 is anticipated to be as low as 30 to 60 percent of the CVP Contract Total. By comparison, the projected long-term average allocation of CVP irrigation water south of the Delta is approximately 65 percent of Contract Total, and a recent historic average is 76.4 percent over the past 5 years, with a variation between 50 and 100 percent. The potential reduction in 2008 water allocation is further

exacerbated due to lower-than-average CVP carryover storage and Federal court-mandated actions for delta smelt protection. This water purchase would assist in acquiring an amount of water for the participating south-of-Delta CVP water service contractors to help make up for the reduced water allocations. None of the purchased water would be made available to supplement water under settlement or exchange contracts, as these do not share in the allocation shortages imposed on the water service contractors.

ALTERNATIVES

Enter into an Agreement with the Glenn-Colusa Irrigation District and the San Luis & Delta-Mendota Water Authority (Reclamation's Proposed Action)

Reclamation proposes to enter into an agreement with GCID and SLDMWA whereby GCID would forbear a portion of their base supply and CVP water, which would then be picked up by Reclamation as CVP water to be used for project purposes.

No Action Alternative

Reclamation would not enter into the agreement with GCID and SLDMWA and, therefore, would not provide any of the benefits of CVP storage.

DESCRIPTION OF THE PROPOSED ACTION

Forbearance of Water

GCID agrees to forbear the diversion of a portion of the Sacramento River water that it otherwise is entitled to under the terms of its Settlement Contract with Reclamation and which it would have diverted during 2008 for use on lands within its Settlement Contract service area. GCID would make this water available in accordance with a surface water forbearance program undertaken by GCID in cooperation with landowners who voluntarily decide to participate in the program. The forborne water would be deemed to be comprised of Base Supply and CVP water in the same ratio as these types of water bear to each other in Schedule A of the Settlement Contract. This forbearance would be undertaken in a manner that allows Reclamation to deliver the forborne water supply as CVP water to SLDMWA. Water made available would be delivered to Reclamation at the intake of the GCID's Hamilton City pumping plant at river mile 206 on the Sacramento River, with control of such water accruing to Reclamation at its upstream reservoirs or upon export in the Delta.

Under the proposal, Reclamation would operate the project so as to deliver water made available as a result of GCID's forbearance of diversions to SLDMWA, or its contractors, at the locations identified in their respective water service contracts. During balanced conditions in the Delta (as

defined in the Coordinated Operations Agreement), Reclamation would, to the extent possible, directly divert the water forborne as additional CVP water at Jones or Banks Pumping Plants (assuming there is unused pumping capacity and all conditions necessary for joint point of diversion are met), or would, to the extent that operational conditions upon the Sacramento River permit, back the forborne water into Reclamation's upstream storage so that it can be released and diverted in the Delta at a later time when export capacity becomes available. During excess conditions in the Delta and when the CVP reservoir release is controlled by a downstream flow objective, Reclamation would, to the extent possible, store water forborne in an upstream CVP reservoir for later release and diversion in the Delta. Such operational conditions would be identified by Reclamation's Central Valley Operations office, which would keep daily records of the volume of the forborne water as it becomes available for export and/or storage. Forborne water made available under conditions that do not permit its diversion from the Delta and/or storage in upstream reservoirs would be considered lost. Water backed into storage pursuant to this proposal would be delivered to SLDMWA as soon as possible after its storage in an upstream reservoir. SLDMWA would pay for such storage at the rate determined by Reclamation. Water stored in an upstream CVP reservoir pursuant to this forbearance proposal would be the first water to spill. Water not spilled and carried over to the following year would be available to SLDMWA as supplemental water to be pumped at the Delta facilities when there is pumping capacity.

Quantities of Water to be Forborne

GCID would make up to 85,000 acre-feet of water available for sale as a result of cropland idling and crop shifting and groundwater substitution programs. The forborne water would be made up of up to 82,500 acre-feet of water made available from cropland idling or crop shifting actions by GCID's landowners and up to 2,500 acre-feet of water made available from groundwater substitution attributable to pumping from two electric wells owned by GCID. The sources of this water would be a portion of GCID's base supply and CVP water under its Settlement Contract. Base supply diverted by GCID under the terms of its Settlement Contract is pursuant to pre-1914 appropriative claims to water by GCID for diversions from the Sacramento River. CVP water available to GCID under the terms of its Settlement Contract is pursuant to post-1914 appropriative claims to water by Reclamation for diversions from the Sacramento River.

The main source of water from idled land is expected from rice fields because rice accounts for about 90 percent of the water use in GCID.

The total diversions by GCID, including the amount of water made available by forbearance as determined under this proposal and any amount of water that may be transferred under its Settlement Contract during the April through October contract period, would not exceed GCID's total Contract Amount as specified in its Settlement Contract. Table 1 below provides the expected monthly schedule that water would be made available by GCID through crop shifting/cropland idling and groundwater substitution and the source (Evapo-Transpiration Rate of Applied Water (ETAW), fallowing, or groundwater).

Table 1
Water Availability Schedule

	May	June	July	Aug	Sept	Oct	Nov	Total
ETAW (%)	15	22	24	24	15			100
Fallowing (AF)	12,375	18,150	19,800	19,800	12,375			82,500
Groundwater			500	500	500	500	500	2,500
Total	12,875	18,650	20,300	20,300	12,875	500	500	85,000

Central Valley Project Location

The CVP area, defined by the region in which the water is generated for transfer, is within the GCID boundaries and situated within Glenn and Colusa Counties (see attached Figures 1 and 2). The precise location of the lands involved in the project would depend upon the actual landowners who voluntarily choose to participate in the forbearance program for 2008. Because participation in the forbearance program would be offered to all eligible growers, GCID anticipates a wide dispersal of acreage enrolled in the program. Adequate water levels would be maintained by GCID in laterals and drains associated with the idled lands to avoid any potential wildlife impacts associated with dewatered conveyances. The two GCID-owned wells that would be used for groundwater substitution are depicted in Figure 1. The lands to be fallowed are shown in Figure 3 (attached).

The SLDMWA region stretches from the city of Tracy in San Joaquin County at the north to Highway 41 and Kettleman City in Kings County to the south. On the east, the region is generally bound by the San Joaquin River and to the west by the Coast Range. The region also encompasses parts of Monterey, San Benito, Santa Clara, and Santa Cruz Counties. The areas participating in this project are expected to include Del Puerto, Pacheco, Panoche, San Luis, San Benito County, and Westlands Water Districts and water service contractors in Fresno, Kings, Merced, San Benito, San Joaquin, and Stanislaus Counties. A map of the SLDMWA illustrating its external and internal boundaries, including those of the participating districts, can be found in Figure 4.

The Contract Total for the participating districts would be 1,681,453 acre-feet as set forth in Table 2 below:

Table 2
Contract Totals by Water District

	CONTRACT TOTAL ACRE-FEET
Del Puerto	140,210
Pacheco	10,000
Panoche	94,000
San Luis	125,080
San Benito County	43,800
Westlands (including assignments)	1,268,363
TOTAL	1,681,453

Methods of Making Water Available

No new construction or improvements to facilities owned or operated by Settlement Contractors would be necessary for the production and forbearance of this water. The point of delivery for the Settlement Contractors would be at a variety of different locations on the Sacramento River as identified in their respective Settlement Contracts.

Groundwater

The up to 2,500 acre-feet of water made available through groundwater substitution would be equal to the quantity of groundwater pumped and would be measured with totalizing flow meters installed by or under the direction of GCID. GCID would, to the greatest extent practicable, make such groundwater available during balanced conditions in the Delta. Water made available by groundwater pumping during excess conditions in the Delta would not be accrued in upstream storage or exported by Reclamation.

Cropland Idling and Crop Shifting

To forbear from taking surface water deliveries from GCID, GCID's landowner participants may voluntarily choose to idle acreage or substitute different crops that use less water. GCID anticipates that rice acreage would comprise most of the crop acreage, if not all, that would be involved as part of the forbearance program. To provide for an assessment for environmental impacts and to address concerns regarding potential economic impacts, GCID would not allow more than 20 percent of the total acreage within GCID that was served with surface water deliveries from GCID during the 2007 irrigation season to be idled as part of the project. In this regard, approximately 125,000 acres were planted within GCID and served with surface water deliveries from GCID during the 2007 irrigation season. The proposed ETAW for rice culture is 3.3 acre-feet per acre, which is consistent with the recent ETAW rates used for water transfers in the Sacramento Valley based on cropland idling of rice acreage (California Water Plan Update, Bulletin 160-05. December 2005). Therefore, if up to 20 percent of GCID's 2007 acreage is idled under the forbearance program (125,000 x .20 = 25,000 acres), the water made available for transfer by idling rice would be up to 82,500 acre-feet of water (25,000 acres x 3.3 acre-feet/acre).

GCID would also allow for crop shifting under this forbearance program; however, it is expected that no more than 1,000 acres would involve landowners who voluntarily choose to cultivate different crops having lower water demand. In these cases, the difference between the ETAW of the higher and lower water demand crops would be used to calculate water made available. The ETAW values that have been assigned to various croplands that may be idled or shifted under the proposed project are identified below in Table 3.

Table 3
Estimated ETAW Values for Various Crops
for Use in the 2008 Irrigation Season Forbearance Program

Crop	ETAW
Rice	3.3
Tomato	1.8
Safflower	.7
Wheat	.5
Corn	1.82
Sunflower	1.43
Alfalfa	3.0
Melon	1.12
Bean	1.52
Onion	1.1
Vine Seed	1.12
Sudan Grass	3.0
Walnut	3.0
Almond	3.0
Oats	.5
Pumpkin	1.1
Pasture	3.3
Cotton	2.8
Milo	1.65
Silage	1.8
Carrots	1.1

The typical growing season for rice culture is April through October, although surface water is generally applied only from May through September. The potential ETAW demand across these months is shown in Table 1 with the corresponding water production expectations, assuming that there is enough participation in the program to produce 82,500 acre-feet of water made available from cropland idling/crop shifting and 2,500 acre-feet of water from groundwater substitution.

The total diversions by GCID, including the amount of water made available by forbearance as determined under this proposal and any amount of water that may be transferred under their

Settlement Contracts during the April through October contract period, would not exceed GCID's total Contract Amount as specified in its Settlement Contract.

Water would be made available by GCID to SLDMWA at the point of delivery in accordance with the preceding schedule. SLDMWA would make arrangements under existing contractual agreements with Reclamation for SLDMWA's conveyance of the transferred water through the Delta, pumping the water into the California Aqueduct or the Delta-Mendota Canal, and the ultimate delivery of the water into the SLDMWA service area. In the near term, additional restrictions are anticipated as a result of interim operational remedies to be imposed by the United States District Court, Eastern District of California in *NRDC* v. *Kempthorne*, which will govern CVP and State Water Project (SWP) operations for the protection of the delta smelt (*Hypomesus transpacificus*). Conclusion of the current consultation on the Long-Term Central Valley Project and State Water Project Operations Criteria and Plan (OCAP) with the U.S. Fish and Wildlife Service (Service) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries Service), is expected to provide new biological opinions during 2008 for delta smelt, salmon, and green sturgeon that would replace the court's order regarding CVP/SWP operation. As a result, water may not be able to be transferred in certain months due to environmental restrictions on CVP/SWP pumping.

Reclamation and the California Department of Water Resources (DWR) estimate that approximately 20 percent of the water transferred through the Delta would be necessary to enable the maintenance of water quality standards, which are based largely upon the total amount of water moving though the Delta system. This percentage of water is known as *carriage water*. Additionally, DWR may assess against SLDMWA a 3 percent system loss due to evaporation and other losses for water received at the Banks pumping plant and transported through the SWP. Accordingly, the 85,000 acre-feet of water made available by GCID to Reclamation and SLDMWA at the point of delivery would actually yield to SLDMWA up to approximately 65,450 acre-feet (based on transfer of direct forgone crop water consumption only). At the end of the irrigation season, the amount of carriage water actually required would be calculated by Reclamation and DWR and assessed against SLDMWA. Depending upon the hydrologic year type and other operational constraints, the actual amount of carriage water assessed against SLDMWA for the transfer would vary somewhat from this estimate.

Use of Water by the San Luis & Delta-Mendota Water Authority

Upon the effective date of the Agreement, GCID would convey to SLDMWA an option to purchase up to 85,000 acre-feet of water made available by GCID during the 2008 irrigation season. The deadline for SLDMWA to exercise its option to request GCID to make water available is April 21, 2008. If SLDMWA exercises its option, SLDMWA would take delivery of this water using existing conveyance facilities operated within parameters typical for CVP deliveries. This water would be used to irrigate lands that were under irrigation over the last 3-year period: 2005 through 2007. The acquired supplies would provide additional resource options to the participating SLDMWA irrigation water service contractors to mitigate potential

dry-year water shortage conditions and water supply reductions due to remedial Delta operations for delta smelt mitigation in 2008. Given Delta carriage losses to be charged against the 85,000 acre-feet, the actual delivered amount is expected to be approximately 68,000 acre-feet, or substantially less than 5 percent of Contract Total south-of-Delta supplies for CVP water service contractors in general, and approximately 4 percent for the participating districts. Given the overall uncertainty as to the 2008 allocation, the exact total irrigation water supply to the participating water service contractors cannot presently be determined, but it is highly unlikely it would exceed 65 percent. If it did exceed 65 percent, it would be a maximum incremental increase for the 1-year term of approximately 4 percent. Any amount of water that may be transferred under the Agreement would not exceed the respective Contract Totals specified in the CVP water service contracts of any SLDMWA members that received such water. Accordingly, any water made available under the Agreement would not represent a dependable long-term increase in supply.

ENVIRONMENTAL CONSEQUENCES

Hydrology and Water Quality

No Action Alternative

No changes to existing water resources would occur under the no action alternative.

Reclamation's Proposed Action Alternative

The proposed action would not involve any discharges and thus would not have an adverse impact upon water quality or result in degradation of water quality. Minor improvements in water quality may be expected, as flows below Hamilton City would be increased by roughly 2 to 3 percent. No adverse water quality impacts in the Delta are expected, as all water quality related to pumping restrictions at the export pumps would be maintained during diversion of the CVP water at either the Tracy or Banks pumping plants. As rice lands are generally underlain by impermeable clays (a necessary condition to rice culture), little percolation of water would normally occur; insignificant amounts of groundwater recharge would be affected by cropland idling. Additionally, since only the ETAW value of water applied to the crop would be forborne, the remainder of the applied water would remain in the system for other users. Moreover, GCID has agreements in place with junior water rights holders on the Colusa Drain (Drain) to maintain water quality in the Drain.

The proposed project would not alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river. Minor reductions in drainage from idled fields would result, but these would not increase erosion, siltation on- or off-site, or the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Water levels in the Drain would not be affected, as they are tightly controlled through the management of weirs to prevent flooding of fields on the western side of the Drain. The water made available would be maintained within the Sacramento River and the existing CVP and/or SWP conveyance and

storage systems. In addition, there are no ground-disturbing activities associated with the proposed project.

The proposed project would not create or contribute runoff water. Therefore, no impacts relating to storm water drainage systems would occur with CVP implementation.

All facilities which would be utilized are existing facilities designed according to standard engineering design practices to limit the potential for exposure of people or property to water-related hazards such as flooding. Therefore, no impact relating to flooding would occur with the proposed project.

Temporary storage of up to 82,500 acre-feet of water in Shasta Reservoir would not significantly affect hydrology/water quality. Compared to the capacity of the Shasta Reservoir (about 4.5 million acre-feet) and related water management activities, this is, for practical purposes, a very minor amount of water in any event, and the reservoir currently has several hundred thousand acre-feet of unused storage space late in the 2008 rainy season. Any effect of storing this water would be discountable. Under no circumstance would use of CVP facilities be allowed that would adversely affect any CVP purposes (including water supply, flood control, and environmental requirements).

Biological Resources/Endangered Species

No Action Alternative

No changes in existing agricultural patterns or modifications in the amount or timing of water deliveries, which could affect biological resources or endangered species, would occur under the no action alternative.

Proposed Action Alternative

Biological resources potentially affected by the proposed project are in most cases different in the GCID service area and the Sacramento River conveyance corridor from the water delivery area within the SLDMWA. However, adverse affects are not expected in any of these areas.

Wildlife in General

The proposed project would result in the idling of up to approximately 25,000 acres of rice fields. Rice fields in the CVP area serve as foraging habitat for many waterfowl species. However, implementation of the proposed project would not interfere substantially with the foraging of native resident or migratory waterfowl because other foraging habitat is abundant, both locally and regionally. Because the proposed project would not convert any agricultural lands to non-agricultural land uses, the only change would be a 1-year increase in the time between planting of rice in the CVP farmlands and a minor reduction in the acreage of rice lands available to waterfowl for foraging in 2008. This reduction in foraging acreage is less than significant based upon the regional abundance of flooded foraging habitat. Therefore, a less-than-significant impact would result to potential wildlife corridors for waterfowl, which include

the CVP acreage. Therefore, Reclamation's Proposed Action Alternative is unlikely to adversely affect waterfowl (enter into an agreement with GCID and SLDMWA).

The proposed project would slightly increase flows during July through September in the lower Sacramento River as a result of reduced diversions at Hamilton City. Because of the relatively large volume of summer flows in the Sacramento River, changes in flows resulting from the proposed project would be small, and effects on fish in the Sacramento River would be negligible. Therefore, the proposed action is unlikely to adversely affect the movement of any native resident or migratory fish species under Reclamation's Proposed Action Alternative (enter into an agreement with GCID and SLDMWA).

No non-drainage facility-related wetlands are located within the boundaries of the project site, and, as previously noted, the water levels and the water quality in the Drain would be maintained. Therefore, no impacts to wetlands would occur from the proposed project. Any riparian areas along service or drainage canals within the CVP boundaries would not be adversely impacted by the proposed project activities, as water levels would be maintained near levels which would otherwise occur.

Threatened or Endangered Species

While multiple special-status species are present in the SLDMWA service area, the project provides for an incremental water supply to an existing agricultural area to partially make up shortages from the ordinary supply available through the CVP and subject to the terms of existing CVP contracts. The action would not involve conversion of any land fallowed and untilled for 3 or more years. It would not change the land use patterns that affect existing available habitats for bald eagle (*Haliaeetus leucocephalus*), vernal pool tadpole shrimp (*Lepiderus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), Longhorn fairy shrimp (*Branchinecta longiantennal*), conservancy fairy shrimp (*branchinecta conservation*), Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*), Central California steelhead trout (*Oncorhynchus mykiss*), South Central California steelhead trout (*Oncorhynchus mykiss-CCC-ESU*), California tiger salamander (*Ambystoma claiforniense*),California red-legged frog (*rana aurora draytonii*), Blunt-nosed leopard lizard (*Gabelia sila*), giant garter snake (*Thamnophis gigas*), Tipton kangaroo rat (*dipodomys nitratoides nitratoides*), riparian woodrat (*Neotoma Fuscipes riparia*), riparian brush rabbit (*sylvilagus bachmani riparius*), giant kangaroo rat (*Dipodomys ingens)*, or San Joaquin kit fox (*Vulpes macrotis mutica*), all of which are possible or present within portions of the SLDMWA service area. For the same reasons, the proposed project will not affect migratory corridors of the San Joaquin kit fox, critical habitat for the vernal pool invertebrates described above, riparian habitat of the riparian woodrat or riparian brush rabbit, and will not change the pattern of cultivated or fallowed fields that do have some value to listed species of birds protected by the Migratory Bird Treaty Act. Due to the lack of natural waterways within the species' range in the SLDMWA service area and the limitations in Delta export capacity and water quality restrictions implemented through various regulatory programs affecting water management in that service area, there would be no effects on listed fish species. Therefore, no adverse affects would occur within the SLDMWA service area.

The proposed action would not adversely affect listed species in GCID's service area dependent upon the water-filled irrigation ditches and drains, as GCID would maintain water levels in the irrigation ditches and has contractual agreements to maintain water quality in the Drain. The habitat value of the lands subject to idling within GCID, which varies seasonally under normal use, would be affected some, but the percentage change would be small. The greatest use of these lands by vertebrates arguably occurs in the fall and winter when wintering waterfowl forage or rest in flooded rice fields. Wildlife use during other periods is generally quite limited, as these lands are devoted to annual crops.

Several special-status wildlife species have the potential to occur within GCID and on the lands that would be idled or the agricultural waterways serving them: the giant garter snake (listed as state and federally threatened), the northwestern pond turtle (listed as a state species of special concern and Federal species of concern), and the Valley Elderberry Longhorn Beetle (VELB) (threatened). However, the waterways and ditch borders most important to these species would not be altered, as the ditches would remain watered. Additional species, primarily plants and animals found in vernal pools or other natural wetlands, may occur near some of the lands subject to idling, but such habitats would not be affected by the proposed action, as the hydrology in the natural and artificial waterways would remain unchanged. Also, the bald eagle, which may be present as a transient, would only be expected on these lands during the winter when water fowl, one of its sources of food, are present.

The special-status species in the Sacramento River and Delta would not be adversely affected, as the water levels in those systems would be slightly augmented. There would be no adverse affect on the Sacramento River winter-run Chinook salmon (listed as state and federally endangered), Central Valley spring-run Chinook salmon (listed as federally threatened), the delta smelt (listed as state and federally threatened), the Central Valley steelhead (listed as federally threatened), and the green sturgeon (listed as federally threatened).

Detailed species specific accounts follow.

Giant Garter Snake (Thamnopsis gigas)

The giant garter snake (GGS) may be found in agricultural wetlands such as rice fields and irrigation and drainage canals. These artificial wetlands and waterways can potentially be used for purposes such as ease of movement; protection from predators; warmth to aid metabolism, gestation, and digestion; and as a food source. (*Draft Recovery Plan for the Giant Garter Snake. 1999*). While the irrigation patterns throughout the Settlement Contractors' lands would be modified as a result of the proposed project, water levels in irrigation and drainage canals would be maintained within several inches of non-CVP operations, and no complete drying out of such conveyances would occur. As such, water conveyance systems would remain watered and available to the snake and other wildlife that utilize it. In this regard, the lands within GCID that are currently enrolled to participate in the forbearance program for 2008 are depicted on the map in Figure 3. GCID's extensive network of lateral and drainage canals is also depicted on this map. This map shows that all of these enrolled lands are within one-quarter mile or closer to GCID's canal network. This further serves to minimize any

potential adverse affects to the GGS by providing transportation corridors and foraging and cover areas in immediate proximity to the fallowed lands.

Flooded rice fields in the Sacramento Valley can be used by the GGS for foraging, cover, and dispersal purposes. The non-irrigated CVP fields would have little or no vegetation, retaining the open character that is currently present in fields that are between plantings or that otherwise have relatively little vegetative cover. The maximum increase in the percentage of land idled in this project would be 20 percent of the total amount of acreage within GCID served with surface water deliveries during the 2007 irrigation season. Accordingly, at least 80 percent of GCID's irrigable acreage would remain unaffected or would be subject to changed cropping selection that preserves the vegetated condition of the land. Lands taken out of production would be dispersed throughout GCID such that the contiguous nature of idled lands would be minimized, allowing for a mosaic of lands that could be utilized by the GGS throughout GCID's jurisdiction. The changes to agricultural fields that would occur under the proposed project could have minor and temporary indirect effects on the GGS through the decrease in potential cover and foraging areas as a result of the reduction in planted rice acreage. The 1-year duration of the proposed project minimizes any potential disruption to the GGS. Moreover, GCID, in consultation with the Service, has developed certain best-management operations and maintenance practices for agricultural lands that are within GGS habitat. GCID implements these measures on a voluntary basis in order to minimize any impacts to the GGS.

Therefore, Reclamation's Proposed Action Alternative (enter into an agreement with GCID and SLDMWA) would not cause a direct adverse or cumulative adverse effect on GGS in the study areas.

Northwestern Pond Turtle (Clemmys marmorata marmorata)

The northwestern pond turtle inhabits waters with little or no current. The banks of inhabited waters usually have thick vegetation, but basking sites such as logs, rocks, or open banks must also be present. Pond turtles lay their eggs in nests in upland areas including grasslands, woodlands, and savannas. Pond turtles could potentially be found in and along irrigation and drainage canals, but would not be residents of rice fields. The proposed project would not eliminate water from the conveyance canals within each service area. Therefore, the proposed project would not impact the northwestern pond turtle, either directly or indirectly.

Therefore, Reclamation's Proposed Action Alternative, i.e., to enter into an agreement with GCID and SLDMWA, would cause neither a direct adverse effect nor a cumulative adverse affect on the northwestern pond turtle in the study areas.

Chinook Salmon (Oncorhynchus tshawytscha), Delta Smelt (Hypomesus transpacificus), Steelhead (Oncorhynchus mykiss), and Green Sturgeon (Acipenser medirostris)

The Sacramento River south of GCID and the Delta form a migration corridor and provide seasonal rearing habitat for winter-run and spring-run Chinook salmon, steelhead, and green sturgeon. The Delta and lower Sacramento River also provide spawning and nursery habitat for

delta smelt. The proposed delivery of water to SLDMWA would be delivered through the Delta with timing similar to SLDMWA's typical CVP deliveries in conformance with all existing and pending requirements under the Endangered Species Act (ESA), including court orders, which govern CVP and SWP operations for the protection of Chinook salmon, delta smelt, green sturgeon, and steelhead.

The proposed action would not compromise the environmental regulations that specify minimum flow requirements for winter-run and spring-run Chinook salmon and steelhead. Required releases from Shasta Reservoir for the protection of fisheries would continue to be made. Flows in the lower reaches of the Sacramento River and much of the Delta would increase slightly. Diversions through the pumps in the Delta would occur under the requirements of the court's interim remedies order in *NRDC* v. *Kempthorne*, which will govern CVP and SWP operations for the protection of the delta smelt, pending the conclusion of the current consultation on the Long-Term CVP and SWP OCAP with the Service and the NOAA Fisheries Service. This consultation is expected to provide new biological opinions during 2008 for delta smelt, salmon, and green sturgeon that would replace the court's interim remedies order. SLDMWA's diversions of water made available under this proposed project would be undertaken in compliance with the new biological opinions. As such, there would be no direct or indirect impact from the proposed project on listed fish species in the Delta.

Therefore, Reclamation's Proposed Action Alternative (enter into an agreement with the Settlement Contractors and SLDMWA) is unlikely to adversely affect listed species.

Geology and Soils

No Action Alternative

No change from the existing pre-CVP conditions.

Proposed Action Alternative

Based upon readily-available soil map information, most of the CVP area is underlain by fine-textured, strongly-structured soils such as clay and silty clay. Such soils are susceptible to wind erosion but have a relatively low wind erodibility index. The National Resources Conservation Service's 2001 Annual National Resources Inventory found that wind erosion averaged 2.1 tons per acre on cropland.

Agricultural practices dominate over climatic variability in determining temporal variability in dust blowing off cropland in the Sacramento Valley. Farming operations that increase wind erosion and dust emissions include plowing, leveling, planting, weeding, seeding, fertilizing, mowing, cutting, baling, spreading compost or herbicides, and burning fields. These actions can be avoided when a field is left fallow for the season, resulting in a net reduction of wind erosion and dust.

The use of the soils for the proposed project is short-term and is in accordance with past farming practices. No significant impacts are expected from the proposed project.

Agricultural Resources/Land Use

No Action Alternative

Under the No Action Alternative (the typical benchmark), a small percentage of lands within GCID's service area would be rotated and temporarily removed from farm production for improvements such as land leveling, weed abatement, etc. When land is rotated, in almost all occasionss some water is applied to check the leveling actions and also to aid in weed eradication.

Proposed Action Alternative

Idled land for purposes of developing water for the proposed project would be above the typical amount of land typically not under production due to regular farming operational requirements. Within SLDMWA, the proposed activity would result in maintaining typical irrigation patterns and avoiding an increased amount of land idling during 2008 due to water shortages during that year. The amount of water supplementing the SLDMWA participating districts' CVP allocation will amount to a maximum, after deductions for Delta carriage losses, of approximately 68,000 acre-feet, representing approximately 4 percent of the Contract Total for the participating districts. This is an amount within the normal annual variability of such deliveries and less than the Contract Total that has been applied in some years. Therefore, the additional water will not be expected to significantly increase the farmed acreage.

Acreage within GCID's service area may be temporarily idled or cropping patterns shifted (or irrigated with groundwater) to generate the quantity of water identified under the proposed project. The quantity of water made available would be determined based upon the agreed-upon acreage and consumptive use schedule for the lands idled, irrigated with groundwater, or subject to crop shifting. The land idling and cropping changes are considered ongoing routine agricultural activities: the magnitude and intensity of which changes from year to year in response to various factors. No land use changes other than the intended temporary fallowing would result from this action and, because of the short-term duration of this activity (2008 only), this action would not act as an incentive for land use changes.

Cultural Resources

No Action and Proposed Action Alternatives

Reclamation's No Action and Proposed Action Alternatives would not affect cultural resources because the proposed project does not change land use or include construction of new facilities. Water use and land use would remain unchanged during the 1 year of the proposed project.

Indian Trust Assets

No Action and Proposed Action Alternatives

Reclamation's No Action and Proposed Action Alternatives would not affect any Indian Trust Assets (ITA) within the study areas. The Colusa and Cortina Rancherias' Indian lands closest to GCID's service area are approximately 3 and 7 miles, respectively, from GCID. There could be minor, temporary impacts from groundwater pumping to these ITAs. Modeling of groundwater pumping in recent environmental analyses, such as the Environmental Impact Statement for the renewal of the Sacramento River Settlement Contracts, indicated that even substantial groundwater pumping would only cause localized and temporary effects. However, Reclamation would require monitoring of the effects of groundwater pumping to verify this expected absence of impacts. Other actions identified in this EA, such as rice fallowing, will have no effect to the Cortina and Colusa Rancherias. Therefore, no permanent effects are expected.

Environmental Justice

No Action and Proposed Action Alternatives

The No Action or the Proposed Action Alternative would not disproportionately affect minority and low-income populations. Land idling activities and the associated remuneration would allow continued agricultural production and its workforce. Dry conditions may reduce some agricultural work, but by optimizing the use of the limited water resources, only temporary minor shifts of the location of some work would occur.

Cumulative Impacts

No Action Alternative

The condition of all environmental resources under the No Action Alternative would be identical to the existing pre-CVP conditions.

Proposed Action Alternative

Forbearance of surface water supplies by contractors in the Sacramento Valley through the Delta for consumptive uses and environmental purposes has been occurring for almost 10 years. The only demonstrable adverse impacts known to have occurred were some impacts to groundwater levels and individual well owners' water supplies during drought years as part of some early forbearance activities in Butte County, using groundwater substitution to generate the forborne water. Those effects have not occurred during more recent forbearance programs because of aggressive monitoring by a number of parties to prevent such effects. The estimated 2,500 acre-feet of groundwater substitution included in the proposed action would not result in an adverse cumulative effect on groundwater levels in the CVP area. During the groundwater pumping period, GCID will actively monitor surrounding wells and private wells to insure GCID's well pumping does not impact adjacent lands. If GCID determines that impacts may occur, or is notified by an adjacent landowner that impacts are occurring, GCID will reduce or eliminate the operation of its wells. However, as a result of GCID's water deliveries to

non-fallowed lands and canal seepage, it is expected that GCID will recharge the groundwater aquifer in excess of 100,000 acre-feet within its service area, thus, the groundwater pumping will be completely offset by groundwater recharge, which should not impact groundwater levels or pumping by others.

Because the project is of limited duration (1 year) and will represent only a minimum incremental increase in groundwater pumping from the basin during the 2008 irrigation season, no significant groundwater impacts are anticipated. Groundwater supply data collected as part of DWR Bulletin 160-05 indicates that approximately 1,200,000 acre-feet of groundwater is extracted from the Sacramento Valley portion of Butte, Colusa, Glenn, and Tehama Counties during a normal water year. The groundwater substitution component of this project is only 2,500 acre-feet, or less than one-half of 1 percent of the regional average annual groundwater extraction. In addition, GCID operated a much larger groundwater program during 1994: a dry year. In 1994, the groundwater program produced approximately 65,000 acre-feet of groundwater during the summer months, and there was significant additional pumping that occurred outside of GCID and in other nearby districts. Groundwater levels across the region declined approximately 30 feet during the pumping period; however, the water levels fully recovered during the fall of 1994 and the winter of 1995.

Within the SLDMWA service area, the slight increase in available surface supply from the project would have a potentially beneficial, but not significant, effect on groundwater table levels insofar as the supplemental supply replaces groundwater pumping. Because of water shortage and regulatory activities, users within the SLDMWA service area have implemented extensive water conservation and reuse activities. Therefore, the application of the supplemental water, representing an increment of approximately 4 percent of the Contract Total for the participating districts and of the south-of-Delta Contract Total for all CVP water service contractors, will not be expected to have any effect on groundwater.

Table 4 below summarizes the recent history of water transfers from the Sacramento Valley to other portions of California. Table 4 shows that the proposed transfers for 2008 that are reasonably foreseeable total 360,000 acre-feet. This represents less than 4.5 percent of total average agricultural water use in the Sacramento Valley and 1.9 percent of the average annual total water supply available in the Sacramento Valley from surface and groundwater resources for all uses. As such, and recognizing that no significant impacts have been noted for transfers within this order of magnitude, no significant impacts are expected within the Sacramento Valley as a result of the proposed project. Delta impacts are likewise not expected to be significant, as all of the water shown in Table 4, plus an additional 25,000 acre-feet in 2001 from a San Joaquin River transfer, was pumped in the Delta within existing biological constraints and without incident. Therefore, even if there were additional transfers beyond these levels, such transfers would probably need to be on the order of magnitude of several hundred thousand acre-feet more in order even to pose the potential for adverse effects on the environment.

Table 4
Recent Water Transfers (000s acre-feet)

Program	1991	1992	1993	1994	2001	2002	2003	2004	2005	2006	2007	2008 *
DWR Drought Water Banks Dry Year Programs	820	193	0	220	138	22	11	1	0	0	0	0
Environmental Water Act					80	142	70	120	5	5	125	70
Sacramento Valley Forbearance					160							85
Others						5						205
Totals	820	193	0	220	378	169	81	121	5	5	125	360

***** 2008 numbers are estimated transfers.

Given the chronic shortages in allocations of CVP irrigation water to south-of-Delta CVP water service contractors, the SLDMWA and its members have multiple programs to obtain supplemental supplies. These range from historic district-to-district transfers among CVP contractors in the area, reallocation agreements among SLDMWA members, transfers from the Exchange Contractors to CVP water service contractors, and other similar transfers to SLDMWA. Under the Proposed Action, the total of all such transfers will not exceed the total contract quantity under the participants' respective water service contracts. Reclamation retains the right to consent to any transfers utilizing CVP facilities and, therefore, can insure that any further transfers do not lead to cumulative impacts.

CONSULTATION AND COORDINATION

The CEQA document on which this Environmental Assessment was based was circulated through the State Clearinghouse and otherwise made available for public comment. Accordingly, Reclamation did not adopt a separate, redundant pubic review for this EA. The proposed GCID Negative Declaration/Initial Study (to be appended to the Final EA) pursuant to the CEQA was completed on March __, 2008.

During preparation of this document, the following agencies were coordinated with and/or assisted in preparing the document:

- U.S. Fish and Wildlife Service
- NOAA Fisheries Service
- Glenn-Colusa Irrigation District
- San Luis & Delta-Mendota Water Authority

Consultation

Reclamation has consulted with NOAA Fisheries Service pursuant to the ESA for this action. ESA consultation with the Service was completed for the proposed action on March __, 2008 (to be appended to the Final EA) with concurrence of Reclamation's finding that the proposed action is not likely to adversely affect the threatened delta smelt and threatened GGS.

NOAA Fisheries Service concurred with Reclamation's finding on March __, 2008 (to be appended to the Final EA) that the proposed action will not adversely affect the federally-listed endangered Sacramento River winter-run Chinook salmon, threatened Central Valley spring-run Chinook salmon, threatened Central Valley steelhead, or threatened green sturgeon or their critical habitat.